BY HOWARD S. FISK.

important factor in the financing of good roads county bonds is discussed by the Department of Agriculin a bulletin entitled

"Highway Bonds." In this bulletin the authors point ou that in expending money raised by the sale of highway bonds the highway commissioners should distinguish carefully between the permanent and the perishable features of the road. Foundations, drainage structures, alignment and grades, are permanent features which should be looked upon in the light of an investment. If these features do not comply with a certain standard it will be poor economy to spend money on transitory improvements such as hard surfaces, which must be renewed at considerable expense from year to year.

pense from year to year.

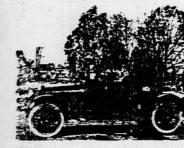
Local conditions, of course, determine to a great extent the proper standards for the permanent features of any highway. Twenty years' experience in modern road building has shown, however, that there is a minimum which any road built on borrowed money should comply with. A close study of 244 different types of road shows that to meet this minimum standard the following sums probably will have to be expended for three standard kinds of highways:

Helps to Avoid Errors.

ain Draino & Sur age & Surling facing Total grad's fac's.

n return for it. So-called macadam oads have been built with bond money by simply spreading broken stone in the mud. The inevitable result of such hortsightedness is that long before he bonds have been paid off, the im-

New Two-Weather **Hudson Six**



men everywhere have been won by the charm of this new Hudson Six. In fair weather the car is an open roadster (as shown). In rain or storm the top can be raised in a minute and you have a completely enclosed car of the coupe type. Men who own large cars buy the Hudson Convertible Roadster for personal driving to and from their offices. For afternoon shopping or theatre use for two or three it is very popular. Physi-

Built on the famous Hudson Light Six charsis. Come and see this delightfully designed addition to the Hudson line. SEMMES-KNEESSI CO. 1136 Conn. Ave.

The Argo Car

-will save you time, take you wherever you want to go, and for less than you now spend in car fare.

Come in and See This Automobile.

Smith Motor Sales Co., 1823 14th St. N.W. North 5461.

AUTOMOBILES King Eight, \$1,350. Pullman, \$740.

WM. P. BARNHART & CO., Tel. North 198. 1707-9 14th St. N.W.

CYLINDER CADILLAC BAKER ELECTRICS THE COOK & STODDARD CO.

Oldsmobile & Oakland Waverley Electric Pollock Car Corporation

Jackard The Luttrell Co., Tel West \$85. Service Station, 1214 N. H. Ave. N.W.

Rauch & Lang Electrics



provements for which they were issued have ceased to exist and the county has nothing to show for its increased debt. In the same way, it is manifestly poor policy to build an expensive surface on defective grades with poor alignments and shortlived drainage features.

Even when much of the money ex-pended upon a highway has gone into the permanent features there is still danger that the danger that the cost of repairs and maintenance will be overlooked, or at danger that the cost of repairs and maintenance will be overlooked, or at least slighted, in the calculations of the road-builders. When roads are built with borrowed money it is, of course, especially important to avoid this error. On the other hand, it is not necessary to regard the total cost of surfacing a road as a temporary improvement. Much of the surfacing may be classed as a permanent investment, for it is becoming more and more common to have surfaces built in two courses, the lower of which is as much a permanent feature of construction as the grading itself. This is particularly true of those types of road that are built with concrete foundations for bituminous-macadam, brick, or asphalt surfaces. It is probably conservative, indeed, to regard 40 per cent of the surfacing cost of macadam or more enduring pavements as a permanent investment. It of macadam or more enduring pave-ments as a permanent investment. It is seldom nowadays that hard roads are permitted to wear into the founda-tion course of the surfacing.

Method of Estimating.

Probably it is safe to say that an average of about 62 per cent of the total cost of a well built macadam road should be put into the permanent features, and with bituminous-macadam roads about 56 per cent. This method

Type. Gravel (20 feet grading facing. Total. grad's fac's. Gravel (20 feet) (20 feet)

repairs will be required.

To sum up, the authors of this bulletin point out that the initial cost of a road is never the final one; that no surface is permanent, and that repairs and maintenance charges always will be necessary. On the other hand, many be necessary. On the other hand, many features of a good road are to be regarded as permanent investments. When roads are built with borrowed money the distinction between the permanent and the temporary improvement must be carefully observed, in order that the county may have something in exchange when the time comes

been issued since The Star's last re port as follows:

23975-Robert F. Fleming, Evans uilding, R. and L. electric. 23976—John A. Sterrett, Evans building, Baker electric.

23977—William G. Becker, Cottage
Hill, D. C., northeast, Ford.

23978—Josephine Schoch, the Marlborough, Cadillac.

23979—Walter W. Deal, 816 H street

northeast, Cunningham. 23980—Edward Cooper, 1720 1st street

24029—Howard Boyd, 1832 Columbia road northwest, Studebaker.
24030—W. J. Hawley, 1100 Euclid street northwest, Maxwell.
24031—J. L. De Witt, 1725 Riggs place, Ford.
24032—Joseph E. Wander, 65 H street northwest, Ford.
24032—Morgan E. Morgan, 301 Rittenhouse street northwest, Cutting.
24034—Dawson Olmstead, Fort Myer, Va., Overland. Va., Overland. 24035—Hughes Market, Inc., 1108

Connecticut avenue northwest, Inc., 1108
24036—Vermont Garage Company,
Inc., 1123 Vermont avenue northwest,
Velie. 24037—Frank Upman, Woodward uilding, Ford. 24038—Edward J. Gardiner, Grand

SPEED TRAP.

Motorists are notified of the existance of a speed trap at Md., Berwyn, Md., on Baltimore-Washington boulevard. Measured course in vicinity of blacksmith shop. Stop watch used Motorists should not exceed

mong those who expect to visit department.

he automobile show, which opened last New York city, ahe William P. Barnhart, Jefferson S. Combs, George T.
Howard, M. T. Pollock, Henry C. Stein
of Barber & Ross, automobile department: Charles W. Semmes, Howard G.
Kneessi, Robert H. Martin, A. H. Shoup,
Charles E. Miller, W. S. Keeler, P. M.
Rowe and Irving J. Henderson.

New York Show Visitors.

night at the Grand Central Palace,

partment with two one-half-ton Ford rucks for the collection and delivery trucks for the collection and delivery of mails in the National Capital. The purchase of these two Ford machines is more in the nature of an experiment in the distribution of mail matter. In the event that the motor truck proves satisfactory to the postal officials there is a probability that this type of vehicle will be adopted throughout the United States by the department.

Jeffery Representative Here.

Thomas B. Jeffery Company, spent a few days in the National Capital last



CALIFORNIA OUTDOOR SETTING, DECORATIVE SCHEME FOR THE LOBBY OF THE GRAND CENTRAL PALAC IN CONNECTION WITH THE FIFTEENTH ANNUAL NATIONAL AUTOMOBILE SHOW.

21797-McNamee Bros., Berwyn, Md.

21798-M. Arnold Hemp, Knoxville, Md., Buick.

21799—William Queen, Hughesville, Md., Ford.

Studebaker Deliveries.

the past week to Dr. Raymond Fisher

and a "six" touring car to former Rep-resentative Albert Douglass of Ohio.

Reo Car Purchasers.

Among last week's purchasers of

A.; William Montgomery and

were Capt.

W. W. Thomas, who are now driving touring cars fully equipped.

Studebaker "four" touring car,

24039—Sidney West, 14th and G streets northwest, Hudson. 24040—Chilean ambassador, 1013 16th 21793—F. L. Hewitt, Silver Spring, Md., Buick. 21793-F. L. Hewitt, Silver Spring, 24049—Chilean ambassador, 1013 18th street northwest, Lozier. 24041—Kennedy Bros., Inc., 1334 H street northwest, Ford. 24042—Charles L. Fitzhugh, 2253 Sheridan Circle northwest, Packard. 21793—F. L. Hewitt, Silver Spring, Md., Cole. 21795—W. C. Erdman, Baltimore, Md., Chalmers. 21796—John G. Erdman, Baltimore, Md., Studebaker.

21726-James H. Cissel, Silver Spring, Md., Ford. 21727—C. Ernest Nichols, Laurel, Md., Overland. 21728—C. Harry Kind, Baltimore, Md., Hudson. 21729—Clarence H. McCullough, Balti-

21729—Ciarence H. McCullough, Balti-more, Md., Pullman. 21739—Edward Gasch, Bladensburg, Md., Ford. 21731—Mrs. James J. Ryan, Baltimore, Md., Hudson. 23930—Edward Cooper, 1933 I street or orthwest, Ford.
23981—M. L. Beckner, 933 I street dris. Va., Carnation.
21732—Annette D. Edward orthwest, Ford.
21734—M. Va., Carnation.
21734—Milliam H. Thompson, Relay, Md., Bulck.
21734—M. R. Bradley, Colesville, Md.,

23983—David Abraham, 521 M street ford. Samuel H. Ruth, Baltimore, 23984—Oyster Bros., Center Market, Studebaker. 21736—John M. Cullen, Frederick Md., Studebaker.

23985—Harry L. Kopp, 1017 7th street northwest, Ford.

23986—Olive M. Tallentire, 1431 Girard street northwest, Overland.

23987—Woodward & Lothrop, 11th and F streets northwest, White.

23988—Harriet B. Loring, 1512 K street northwest, Ford.

23988—Harriet B. Loring, 1512 K street northwest, Ford.

23989—A L. Hunt, the Burlington, Buick.

21741—William A. Wheatley, Baltimore, Md., Buick.

21741—William A. Wheatley, Baltimore, Md., Buick.

21741—William A. Wheatley, Baltimore, Md., Ford.

Ford.

21781—W. H. Mattingly, Abell, Md.,
Ford.
21782—J. M. Fowler, Baltimore, Md.,
Hudson.
21783—Joseph G. Lournback, Alexandria, Va., Hupmobile.
21784—Walter C. Oliver, Capital
Heights, Md., Columbia.
21785—Mrs. G. D. Dolan, silver Spring,
Md., Ford.
21786—Dr. A. E. Muse, Baltimore, Md.,
Ford.

Haynes. 21792-Miss Etta Shanbarger, Balti-

21787-Felix Agnus, Stevenson, Md. 21787—Felix Agnus, Stevenson, Md., Oldsmobile. 21788—William R. Dougherty, Balti-more, Md., Ford. 21789—John G. Rhode, Baltimore, Md., Overland. 21790—Samuel H. Rosenstock, Fred-erick, Md., Case. 21791—A. W. Gleske, Catonsville, Md., Haynes.

NEW AUTO COMPANY.

Combs-Howard Company to Represent Jeffery Line.

The Combs-Howard Company, a ne automobile concern, has been appointed representative for the Jeffery line for the District and adjacent territory, The members of the company are Jefferson S. Combs and George T. Howard, both of whom are well known to branch of the Goodyear Tire and Rubfully equipped, was delivered during ber Company. The company will not only handle a line of pleasure cars, but will also represent the Jeffery truck, including the four-wheel-drive, which is produced by the same manu facturing concern that builds the pleasure cars. Beautifully appointed salescooms have been secured at corner of Vermont avenue and H street north-west, where the 1915 models have been placed on exhibition. Mr. Combs and Mr. Howard will leave in a few days to attend the New York automobile

Argo Roadster Deliveries. Argo roadsters were delivered during

the past week to J. B. Trueman and

Purchases Chandler Car.

The latest purchaser of a 1915 Chandler five-passenger touring car is Beverley J. Smith, jr., delivery being made a few days ago.

A Studebaker Visitor.

A. S. Fisher, southern sales representative for the Studebaker Corpora-A blowout-Suffragette released from tion, spent the week end in the Na tional Capital. While here he made his headquarters with the Commercial Automobile and Supply Company. He leaves today for the south.

Ford Deliveries Last Week.

During the past week Ford cars were delivered to the following: Amiss, Mrs. M. E. Booth, F. P. Peel and "What's the matter, John? You act like a fish out of water."
"Say rather like a man out of gasoline, my dear," responded John, as the auto came to a halt.

Runabouts to C. W. Lockwood and Mazo Brothers.
Delivery wagons to H. Vassillion and Eugene Kahn.
Town car to James B. Lambie.
Coupelet to Claude E. Miller.



Superiority

The superiority of Rauch & Lang body construction is readily apparent, even to the novice.

But this body, with its perfect appointments, esthetic lines and aristocratic atmosphere, takes on an idded significance when propelled by the wonderful Rauch & Lang Top-Mounted, Straight-Type, Worm Drive, the newest and most perfected method of Elec-

THE BARTRAM ELECTRIC GARAGE "The Largest Exclusive Electric Garage in Washington."

Conchitation (Millian Conchitation)

Miller Bros. auto and supply house of this city has been awarded the ontract to furnish the Post Office Deartment with two oneshelf-ten. IS SHOWN IN AUTOS

Bodies Are Made So That Wind Resistance Is Lessened.

MANY CARS DISPLAYED AT NEW YORK SHOW

Beautiful Effect Obtained by Interior Decorations at Grand Central Palace.

NEW YORK, N. Y., January 2 .- Visbile show in Grand Central Palace, which opened here today, noted no only that motors are being made much lighter, with smaller bore and longer tomobile has been a sinner, as the constant clouds of dust in summer too often prove, but 1915 reveals a marked improvement in bodies. Designers are rapidly adopting the stream-line body and its use has become almost universal. It not only adds to the looks of the car, but to the speed and comfort of road travelers, and dwellers along the road as well.

Less Wind Resistance.

Beginning at the front, the flat radiator and projecting dash have almost completely given way to the curved or pointed radiator, back of which the hood slopes slightly outward and upward, until it blends into and becomes a part of the cowl. Then, the winda part of the cowl. Then, the wind-shields are not so prominent and pro-jecting as they were in past years. Some of these windshields are in-clined so as to offer less air resistance, and the tops also have been consid-ered from this wind-resistance point of view.

Only a few years ago mudguards of-ten were seen projecting unward into

Only a few years ago mudguards often were seen projecting upward into the air as if to catch as much wind as possible, but today the ovaled or crowned fender is largely in evidence, and is a thing of beauty. Being rounded on top, it does not offer a platform for dirt and mud as heretofore, and it is not liable to be used as a work bench with consequent damage to its brilliant enamel. It turns down in front of the wheel and not only catches any mud thrown to the front to be blown back in the driver's face, but it shields the top of the wheel from the air, thereby lessening the wind resistance.

Power Saved, Speed Gained.

Many people do not consider that he top of the wheel travels twice as fast as the vehicle and its mudguard. and so offers four times the wind resistance, but such is the fact, in cally. Mr. Howard for a number of theory at least. By molding the guard was manager of the Washington so as to lessen this resistance, power is saved and speed gained.

The smooth sides of the vehicle allow the wind to stream past with only slight resistance, while the absence of boxes, tires, etc., on the run-ning boards further adds to this de-

to them decorations designed not so much with the intention of producing

Persian Draperies Used.

Persian draperies are hung in gracestroke, than in former years, but will see the influence of the aeroplane pointing out the lines for automobile bodies. Boats and airships use smooth bodies. Boats and airships use smooth of the white marble pillars. The floor cessories will be stream lines in their bodies and exposed parts that they may move with less friction and disturbance of the less friction and disturbance of the armong green foliage and ivy. The

sired factor. Smooth underbodies or drip pans are a further factor in speed not often considered by buyers because they are not seen easily. Even the rears of the bodies are following the shapes of the aeroplane shells and are pointed or extended to cause less vacuum as the car speeds. This lessened vacuum is so much power added, not to mention the smoother and cleaner appearance.

Interior Decorations.

Visitors to the show have revealed to them decorations designed not so

Electric Signs Used.

Lighting system for the center court is most interesting. Several mammoth orystal chandellers, each about ten deter in diameter, with hundreds of electric lights, hang from the ceiling, and the glow from these makes the scene a brilliant one—a veritable "bowl of light that sets the stars to flight," as the Rubaiyat phrases it.

A new scheme of displaying the names of the cars is employed this year, and it is believed it will be found far more desirable than the signs at former shows, even though these always were high class and dignified.

Electric Signs Used.

much with the intention of producing an extravagant and pretentious mural effect, but rather to produce a setting which shows to advantage the cars exhibited. The general scheme of decoration is to convert the interior into a Persian palace and it is one that the late Omar Khayyam would have been proud to visit and write quatrains about. However, that is the poetic opinion of the management and M. A. Singer, to whom the work was intrusted, and it will remain with the visitors to praise or criticise these decorations.

To begin with, the palace has the effect of its huge area multiplied by the use of 50,900 square feet of mirrors covering the walls. These are enormous pieces of crystal, some of them measuring 19x7 feet, and they are mounted in gold frames. Alternating between these mirrors about the main floor are decorative sunbursts, which produce a decidedly beautiful effect.

Persian Draperies Used.

Electric Signs Used.

Instead of painted signs, the letters in the names of the cars are wrought in the names of the sare wrought. Instead of painted signs, the letters in the form of electric light tubes, such as are being used at present by a number of motor car dealers in the form of electric light tubes, such as are being used at present by a number of motor car dealers in the form of electric light tubes, such as are being under or decire light tubes, such as are being used at present by a are covered with lattice work and creeping vines.

Want to Get a Car in the New Year?

Had same idea a year ago, didn't you? Decided you couldn't afford it, maybe; Or you didn't have enough money at any one time. Perhaps you had a car already; Or just putting it off?

Whatever your reason, we have an offer to make to you that will put it within your power to get a \$440 FORD roadster or a \$490 FORD touring car in 1915.

No Need to Have the Price Now!!

But it will be necessary to answer this "ad" immediately. Either phone the Sales Manager at Lincoln 4060, or put your name and address in the following space and mail it to us:

(ADDRESS)

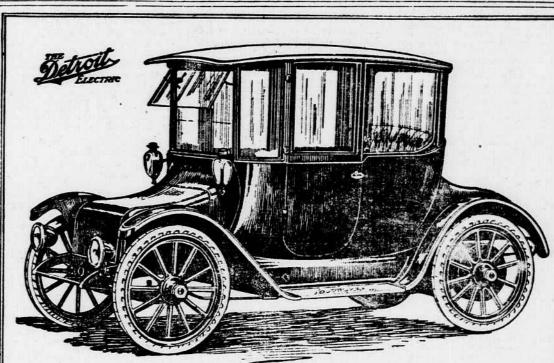
(NAME)

This Offer Is Only Open to Those Answering by Jan. 10 It also applies to FORD COUPELET—SEDAN—and DELIVERY CARS.

MILLER BROS., AUTO AND SUPPLY HOUSE 61 Pierce Street Northeast. Phone Lincoln 4060.

Uptown Store-1105 Fourteenth Street Northwest. **EVERYTHING FOR THE MOTORIST**

Today's Special-Windshield Clear Vision Device-\$1.50.



A Costly Two Per Cent

How often do you want to motor faster than 25 miles an hour? How many times do you ride farther than

sixty miles? Not more than two trips out of a hundred, according to statistics.

Is It Worth It?

Is that two per cent worth the doubled upkeep cost of a gas car over an electric?

The oversized motor and battery of the Detroit Electric gives it a speed of 20 to 25 miles an hour. It will cover 60 to 75 miles on one charge of the battery. Any member of the family can drive it.

Ask the Owner

Ask some of your men friends who drive a Detroit. Many of them formerly drove gasoline cars. They will tell you that it gets them to the office just as quickly as a gas car. Because in the open it will run faster than the law permits, while in crowded traffic it will beat a gas car, because it is more flexible and under better control.

The Reason Is Clear

They will tell you that the cost of operation is about half that of the average gasoline car; while the cost of up-keep, repairs, replacements, etc., is only about one-fourth. It's easy to understand why. There is no engine hammering its life away at 2000 revolutions per minute; no ruinous vibration eating into its vitals. There's almost nothing to wear out.

Figure It Out

The low speed motor of the Detroit Electric runs absolutely without vibration; almost without friction. The battery is guaranteed for 8000 miles. Pneumatic tires last twice as long as on gas cars; cushion tires, three times as long. Contrast this with the cost of owning a gasoline car and draw your own con-

The sturdy well built mechanism of Detroit Electric cars will be kept in perfect condition if you will take advantage of our service department. We offer every facility to Detroit Electric car owners to keep their cars tuned up to the highest degree of perfection at but slight expense.

EMERSON & ORME Distributers

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